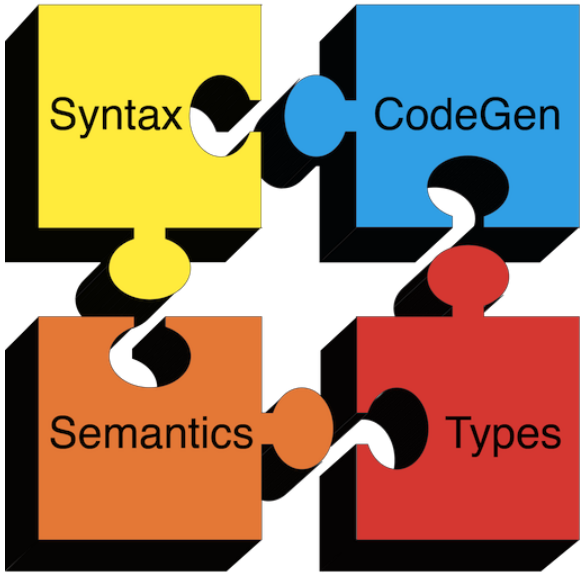

Compilers

Formal Languages

Formal Languages

Def. Let Σ be a set of characters (an *alphabet*).

A *language over* Σ is a set of strings of characters drawn from Σ

Formal Languages

- Alphabet = English characters
- Language = English sentences

- Alphabet = ASCII
- Language = C programs

Meaning function *L* maps syntax to semantics

Formal Languages

- Why use a meaning function?
  - Makes clear what is syntax, what is semantics.
  - Allows us to consider notation as a separate issue
  - Because expressions and meanings are not 1-1

Formal Languages

Formal Languages

Formal Languages

- Meaning is many to one
  - Never one to many!